CHAPTER 10: MASTER CLAMP SECTION

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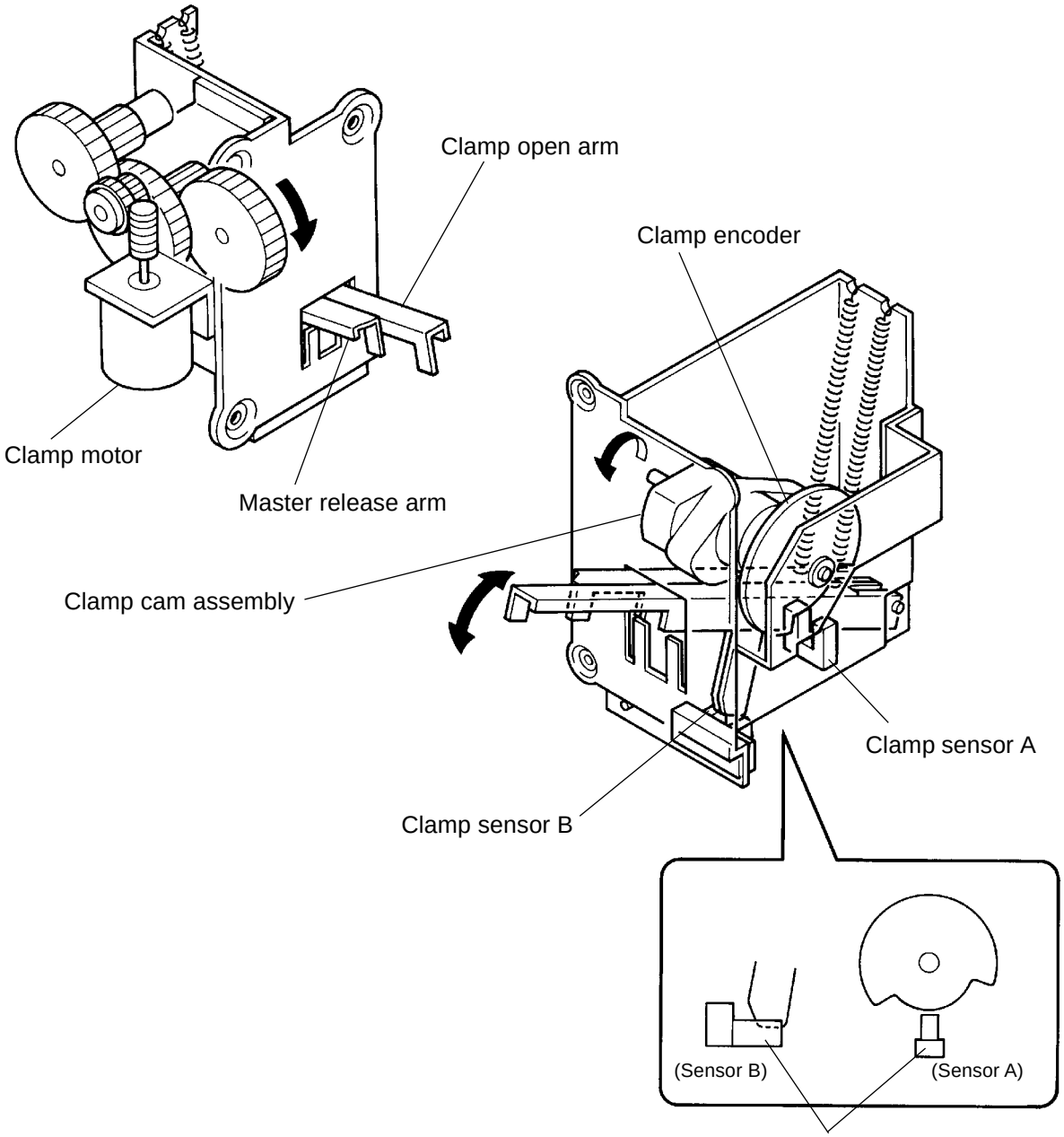
1. Theory of Operation

1. Clamp Unit Home Positioning Mechanism

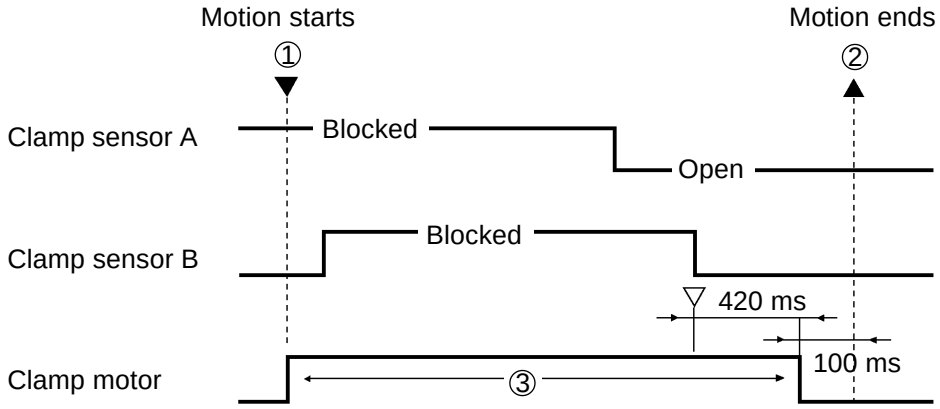
1. Clamp Sensors A and B

- Clamp open arm and Master release arm of the Clamp unit are checked by the Clamp sensors A and B to see if they are in home position every time the machine power is turned ON or the START button is pressed for confidential or normal master making.
- The Clamp unit is at its home position when the light paths of Clamp sensor A and Clamp sensor B are both opened.
- If the light path of either one or both sensors are cut, the Clamp motor is activated to move the arm(s) until the light paths of both sensors are opened.



The light paths of the Clamp sensors A and B are both opened at Home position.

Clamp Unit Home Positioning Timing Chart



① When the machine power is turned ON or START button is pressed for master making, the machine checks whether the Clamp unit is in home position where the light paths of Clamp sensors A and B are both open.
If the light paths are not open, the Clamp motor activates to bring the Clamp unit to the home position.

✱ If Clamp sensor B is blocked when the machine power is turned ON or START button is pressed for master making, the machine indicates error display **[E 03]** and stops the machine.
Press "**All Reset**" button to clear the **[E 03]** display. Then the machine automatically continues the home positioning movement.

② The home position movement is completed when the light paths of the Clamp sensors A and B both become open.

③ If the light paths of the Clamp sensors A and B do not become open within **13 seconds** after the Clamp motor activates, the machine assumes that the Clamp motor has locked and displays error message **[E 03]**.

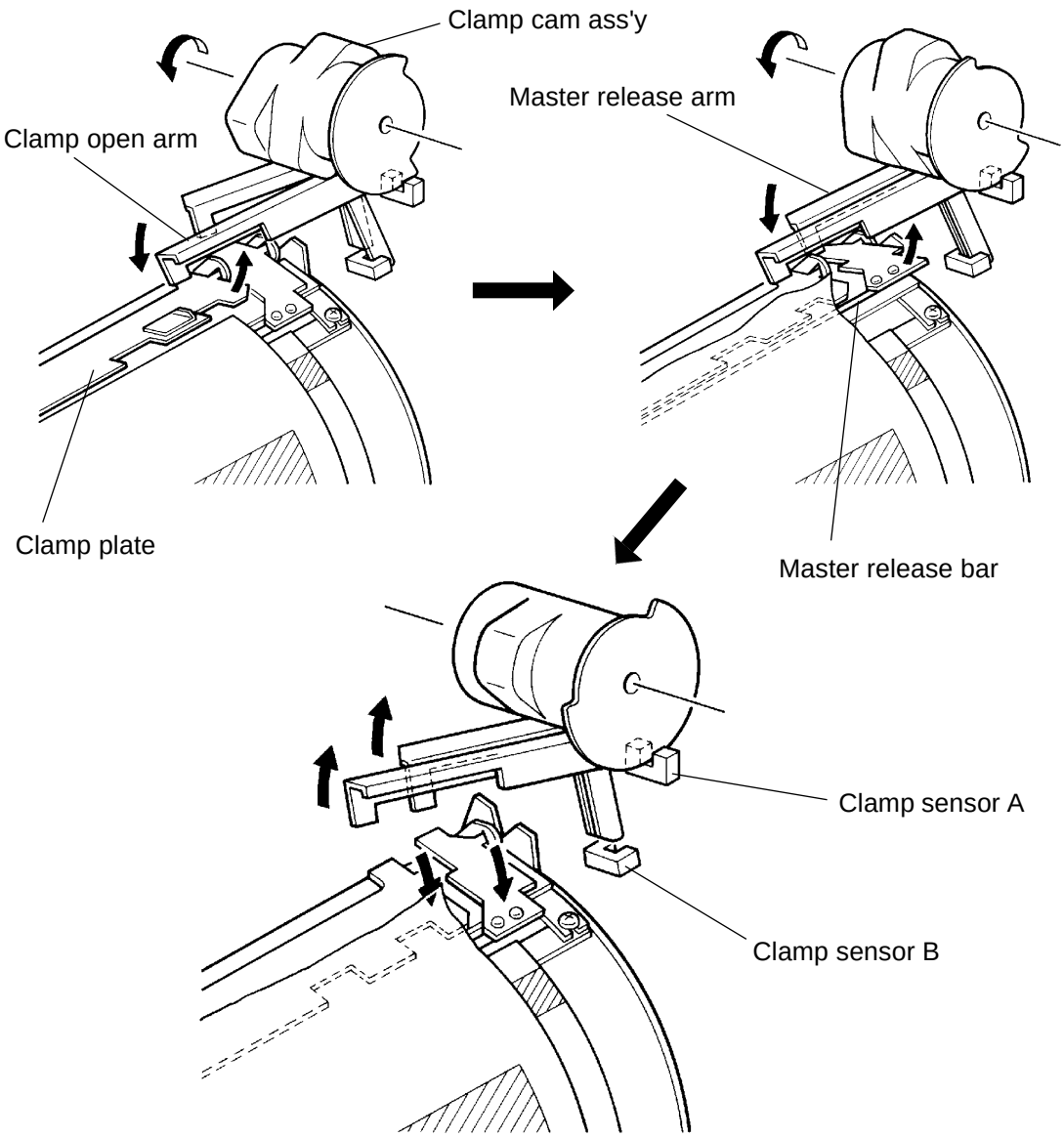
2. Clamp Plate Master Release Mechanism

1. Master on the Drum check

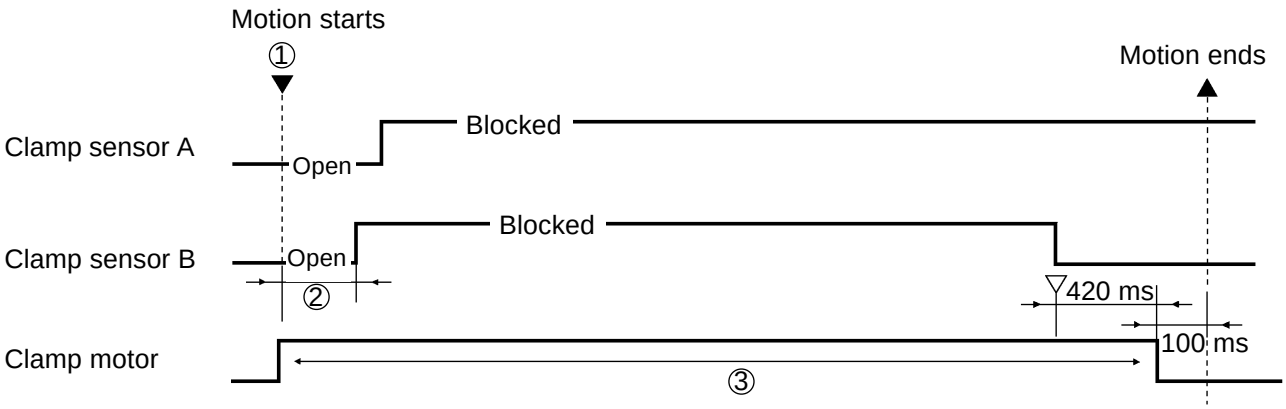
- When the START button is pressed for confidential or regular master making, the Drum rotates and presence of the master on the Drum is checked.
- If a master is found on the Drum, the master release movement is made after the Drum returns to Position-A.

2. Clamp open arm & Master release arm

- The Clamp open arm comes down first and opens the Clamp plate to free the leading edge of the master.
- Next, the Master release arm comes down and raises the Master release bar to push the leading edge of the master out of the Clamp plate.
- The Clamp motor continues to rotate the Clamp cam ass'y until both the Clamp open arm and Master release arm are lifted to closes the Clamp plate and the Master release plate.
- The master release movement is completed when the light path of the Clamp sensor B becomes open and the Clamp motor stops.



Clamp Plate Master Release Timing Chart



① When START button is pressed for master making, if the light paths of Clamp sensors A and B are not both open, the Clamp motor turns to bring the Clamp unit to the home position before making the movement to release the clamped master.

② If the light path of Clamp sensor B is not blocked within **3 seconds** after the Clamp motor activates, the machine assumes that the Clamp motor has locked and displays error message **[E 03]**.

③ If the light path of Clamp sensor A does not become blocked and that of Clamp sensor B does not become open within **12 seconds** after the Clamp motor activates, the machine assumes that the Clamp motor has locked and displays error message **[E 03]**.

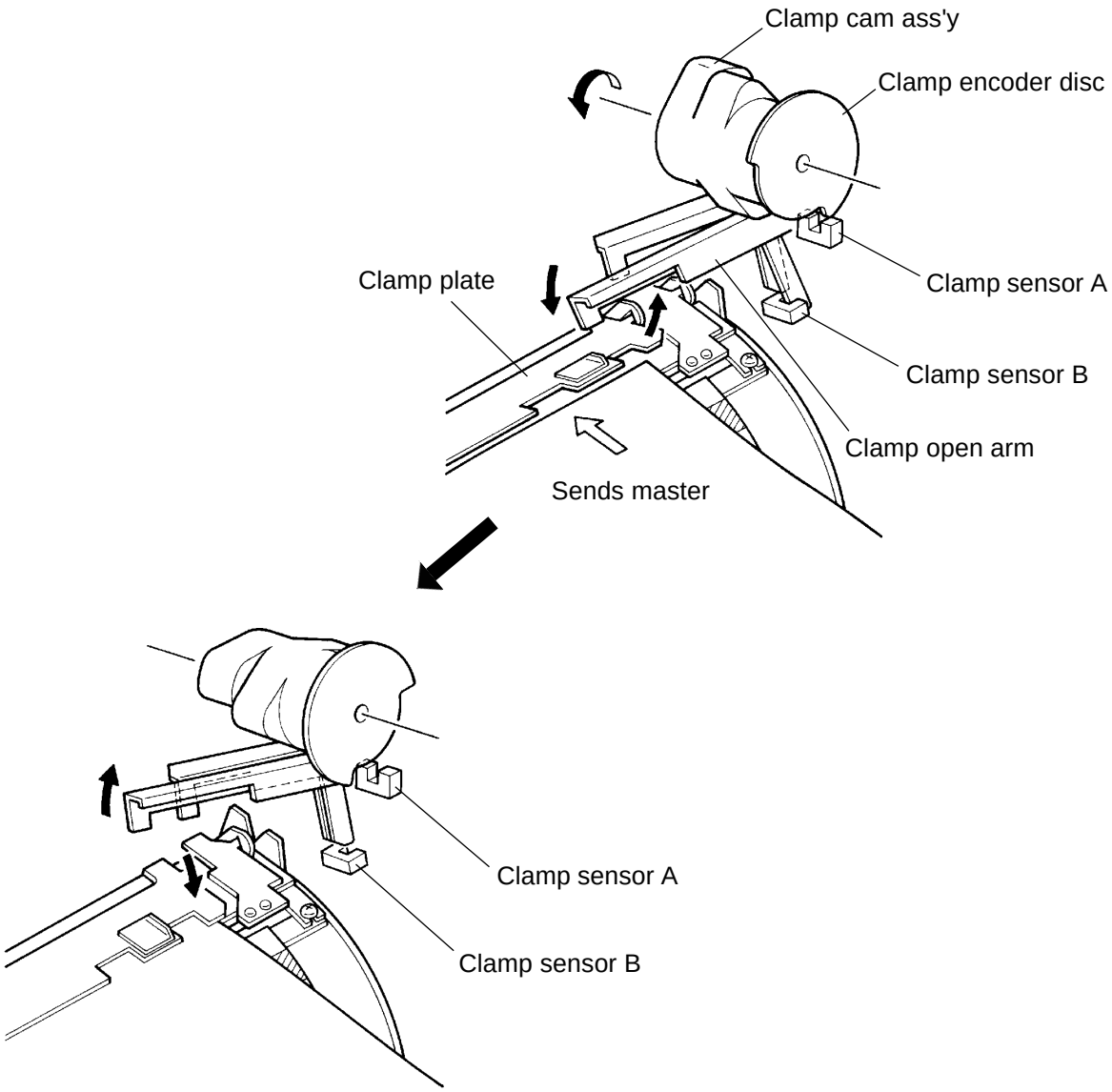
3. Clamp Plate Master Clamp Mechanism

1. Master removal

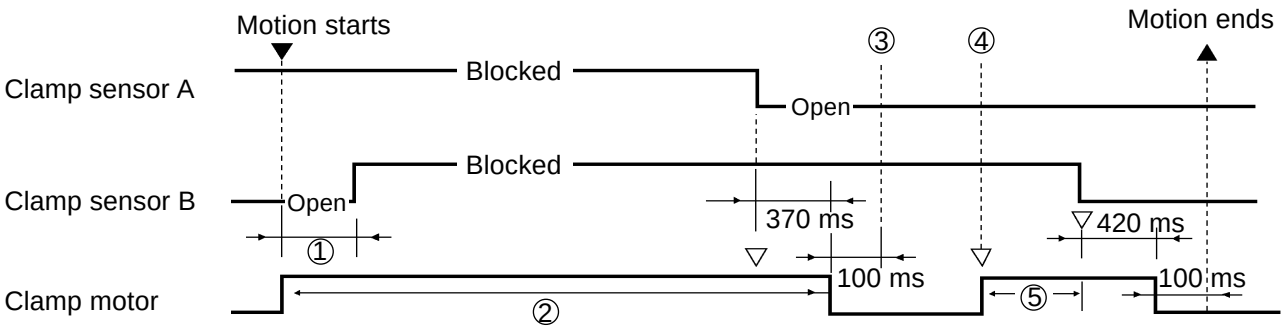
- The master clamp movement is made after the master is removed from the Drum.

2. Master clamping

- With the activation of the Clamp motor, the Clamp open arm is pushed down to open the Clamp plate.
- The Clamp motor stops when the light path of Clamp sensor A becomes open and keeps the Clamp plate raised open.
- When the Write pulse motor sends certain set amount of master onto the Drum, the Clamp motor activates to raise the Clamp open arm and close the Clamp plate.
- The Clamp motor turns off when the light paths of both the Clamp sensors A and B becomes open.
  The Clamp plate is closed and the Clamp unit is returned to the Home position.



Master Clamping Timing Chart



① If the light path of the Clamp sensor B is not blocked within **3 seconds** after the Clamp motor is activated, the machine assumes that the Clamp motor is locked and displays error message **[E 03]**.

② If the light path of the Clamp sensor A is not opened within **5 seconds** after the Clamp motor is activated, the machine assumes that the Clamp motor is locked and displays error message **[E 03]**.

③ The Drum waits for the master with the Clamp plate opened.

④ The Clamp motor activates to clamp the master with the Clamp plate when the master loading to the drum is completed.

⑤ If the light path of the Clamp sensor B is not opened within **5 seconds** after the Clamp motor is activated, the machine assumes that the Clamp motor is locked and displays error message **[E 03]**.